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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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11/01/2000

Michael A. Davis

712-002-104

4186

4955

7590

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EXAMINER

LYONS, MICHAEL A

ART UNIT

PAPER NUMBER

2877

DATE MAILED: 02/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/703,823

Applicant(s)

DAVIS ET AL.

Examiner

Michael A. Lyons

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 November 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments, see applicants' Notice of Appeal, filed November 21, 2005, with respect to the rejection(s) of claim(s) 1-20 under the prior art of record in the Office Action mailed April 20, 2004 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of the art as applied below.

Drawings

New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because the drawings contain handwritten element numbers; additionally, most of Fig. 6 and all of Fig. 7 is hand drawn. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

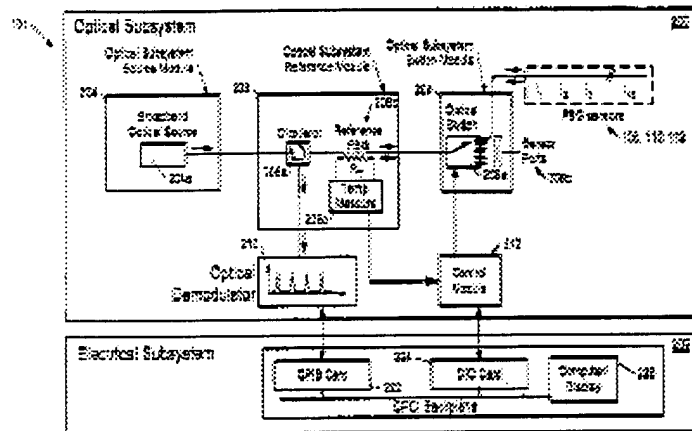
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claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-4 and 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Davis et al (6,403,949) in view of Othonos ("Fiber Bragg gratings").

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

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Regarding claim 1, Davis (Fig. 6) discloses an optical system comprising a broadband source 204a for providing a broadband optical signal, and a reference fiber Bragg grating 206b which can take the form of a fiber Bragg grating-based resonant cavity (col. 10, lines 58-67), for providing a Bragg grating etalon optical signal that is responsive to the broadband optical signal.

Davis fails to disclose the chirping of the Bragg gratings in the resonant cavity to form a chirped Bragg grating etalon.

Othonos, however, teaches the chirping of Bragg gratings, since chirping a Bragg grating enables the grating, instead of reflecting or transmitting a signal wavelength based on the construction of the grating, to reflect or transmit multiple wavelengths based on the configuration of the chirp along varying points on the grating.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a chirped Bragg grating etalon as the reference resonant cavity of Davis as per Othonos, the motivation being that the linear functionality of the resonant frequency of a chirped grating allows for multiple wavelengths to be picked off by a single chirped etalon while being thermally stable (pg. 4327, col. 1).

As for claim 2, the construction of a chirped Bragg grating etalon is, inherently, a pair of chirped Bragg gratings.

As for claim 3, "in a chirped grating, the resonant frequency is a linear function of the axial position along the grating so that different frequencies, present in the pulse, are reflected at different points and, thus, acquire different delay times" (Othonos pg. 4327, col. 1).

As for claims 4 and 20, as with the functionality of any etalon, the wavelengths of the light beam that are not within the resonant frequency or frequencies of the etalon will pass through the etalon unaffected.

Regarding claims 16-19, see the above arguments with regards to claims 1-4.

Claims 5-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Davis et al (6,403,949) in view of Othonos ("Fiber Bragg gratings") as applied to claim 1 above, and further in view of Duck et al (5,615,289).

As for claims 5-12 and 15, Davis and Othonos disclose the claimed invention as described above with regards to claim 1. However, the combined device only discloses an optical demodulator 210 for correcting error and not an optical filter (either generic or bandpass as in claims 6 and 11) for filtering the optical signal so that only the desired reference wavelength peaks remain.

Duck, however, teaches the use of an optical bandpass filter "that is formed within an optical fiber in the form of a Bragg grating" (Duck abstract).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to add an optical filter as per Duck to the combined device of Davis and Othonos, the motivation being that the use of a Bragg grating optical filter (as claimed in claims

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7-10 and 15) or a generic optical filter will suppress the broadband signal at the beginning and end of the spectrum that passes through the chirped Bragg grating etalon unaffected, leading to the only signals remaining in the optical system to be the signals representing the reference wavelength peaks generated by the resonant frequencies of the chirped Bragg grating etalon.

Furthermore, as to the arrangement of the device so that part of the suppressed optical reference signal being directed to an output port, it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japiske*, 86 USPQ 70.

As for claims 13-14, Davis discloses an optical directional device for directing the chirped Bragg grating etalon optical signal in the form of an optical circulator 206a.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Pat. 6,374,006 to Islam, et al., and articles by Forster et al and Rao.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael A. Lyons whose telephone number is 571-272-2420. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley can be reached on 571-272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MAL
February 3, 2006



LAYLA G. LAUCHMAN
PRIMARY EXAMINER